

## On the *Lycaenopsis* group of genera (Lepidoptera, Lycaenidae) of the Sulawesi region

Alan C. CASSIDY

18 Woodhurst Road, Maidenhead, Berkshire, SL6 8TF, England

**Abstract** The status of the Sulawesi species of the *Lycaenopsis* group of lycaenid genera (*sensu* Eliot & Kawazoé, 1983) is revised in the light of new evidence from recent captures. A new species *Sancterila drakei* is described. Changes are given to the range and status of other taxa.

**Key words** Sulawesi, Lycaenidae, Polyommagini, *Lycaenopsis*, Project Wallace.

### Introduction

The butterflies of this group of genera have given problems to interested taxonomists for many years. A much-needed, authoritative and very detailed revision was undertaken by Eliot & Kawazoé and published in 1983 (hereinafter abbreviated to 'E & K'). That revision is adopted as the baseline for further consideration of the representatives of the group from the Sulawesi region, including the islands of Banggai, Tukangbesi, Tana-jampea, Selayar, Sangihe, Talaud and the Sula archipelago as well as the mainland itself.

That the publication of further information on the group should be required so soon after a major revision is a result of discoveries made by the author in Northern Sulawesi whilst a member of Project Wallace, the commemorative expedition of the Royal Entomological Society of London.

Taxonomic and bionomic information is given in the form of an annotated checklist in accordance with the systematics of E & K. Where necessary, amendments are suggested to update E & K's keys in the light of the new information given. Distributional information is based on material in the BMNH, RNH Leiden and on specimens collected during Project Wallace, together with data from original descriptions where applicable. The limited amount of an altitudinal and temporal data available is given as heights in metres and as months of the year (in Roman numerals).

### Abbreviations

AME	Allyn Museum of Entomology, Sarasota, Florida.
BMNH	British Museum (Natural History), London.
EIHU	Entomological Institute, Hokkaido University, Sapporo.
MMNH	Osaka Municipal Museum (Natural History), Osaka.
MNHU	Museum für Naturkunde der Humboldt-Universität, Berlin.
NSM	National Science Museum, Tokyo.
RNH	Rijksmuseum van Natuurlijke Historie, Leiden.
SM	Senckenberg Museum, Frankfurt.
SMT	Staatliches Museum für Tierkunde, Dresden.
ZSBS	Zoologische Sammlung des Bayerischen Staates, Munich.
ZSI	Zoological Survey of India, Calcutta.

## Genus *Neopithecops* Distant

### *Neopithecops sumbanus sumbanus* Eliot & Kawazoé

*Neopithecops sumbanus sumbanus* Eliot & Kawazoé, 1983 : 47. Holotype male, Sumba (BMNH).

Locations. [Islands] : Tanajampea.

### *Neopithecops umbretta dorothea* Eliot & Kawazoé

*Neopithecops umbretta dorothea* Eliot & Kawazoé, 1983 : 53. Holotype male, Sula Islands : Sula Besi, x. 1897 (W. Doherty) (BMNH).

Although known from the Sula Islands, no representative of the species, or of the allied *N. zalmora* (Butler), appears yet to have been taken on mainland Sulawesi. This is perhaps surprising as the genus is widespread from Malaya to Borneo, and occurs in the Philippines and North Moluccas.

Locations. [Islands] : Sula Besi (x).

### *Neopithecops umbretta tituria* (Fruhstorfer)

*Pithecops zalmora tituria* Fruhstorfer, 1919 : 84. Lectotype male, Tanajampea (BMNH).

Locations. [Islands] : Tanajampea (xii).

## Genus *Megisba* Moore

### *Megisba malaya sikkima* Moore

*Megisba sikkima* Moore, 1884 : 21. Holotype male, India : Sikkim (? ZSI).

*Pathalia albidisca* Moore, 1884 : 21. Lectotype male, India (BMNH).

*Megisba malaya* (Horsfield) : Nicéville, 1890 : 61, pl. 26, fig. 165 male (partim).

*Megisba malaya volubilis* Fruhstorfer, 1918 : 6. Lectotype male, Taiwan (BMNH).

*Megisba malaya velina* Fruhstorfer, 1918 : 6 ; 1992 : 857, pl. 154d male and female. Lectotype male, Sumatra (BMNH).

*Megisba malaya infumata* Fruhstorfer, 1918 : 7. Lectotype male, Sulawesi (BMNH).

*Megisba malaya rosanna* Fruhstorfer, 1918 : 7. Lectotype male, Philippines (BMNH).

*Megisba malaya*, var. *iwasakii* Matsumura, 1919 : 643. Holotype female, Japan (EIHU).

*Megisba malaya malaya*, f. *siebersi* Toxopeus, 1927 : 283 ; 1928 : pl. 2, fig. 5. Holotype female, Java (not located).

Fruhstorfer's original material was from Southern Sulawesi, but the species has now been recorded from several parts of the island. Males were regularly encountered drinking from wet sand beside lowland rivers in the Toraut district during the expedition. Females could be found in nearby clearings or along paths through the forest.

Locations. [Mainland] : N Sulawesi : Dumoga-Bone Nat Pk (200 m) (i, ii, iii, iv), Palu (xi), Tawaya (ix). S Sulawesi : Bantimurung, Bonthain (viii, ix, x, xi). [Islands] : Tukangbesi (i), Sula Besi (x), Sangihe (iii).

## Genus *Sancterila* Eliot & Kawazoé (= *Celarchus* Eliot & Kawazoé, **syn. nov.** )

Subgenus *Sancterila* Eliot & Kawazoé. Type species : *Cupido deliciosa* Pagenstecher, 1896.

Subgenus *Celarchus* Eliot & Kawazoé, **stat. nov.** Type species : *Cyaniris transpectus archagathos* Fruhstorfer, 1910.

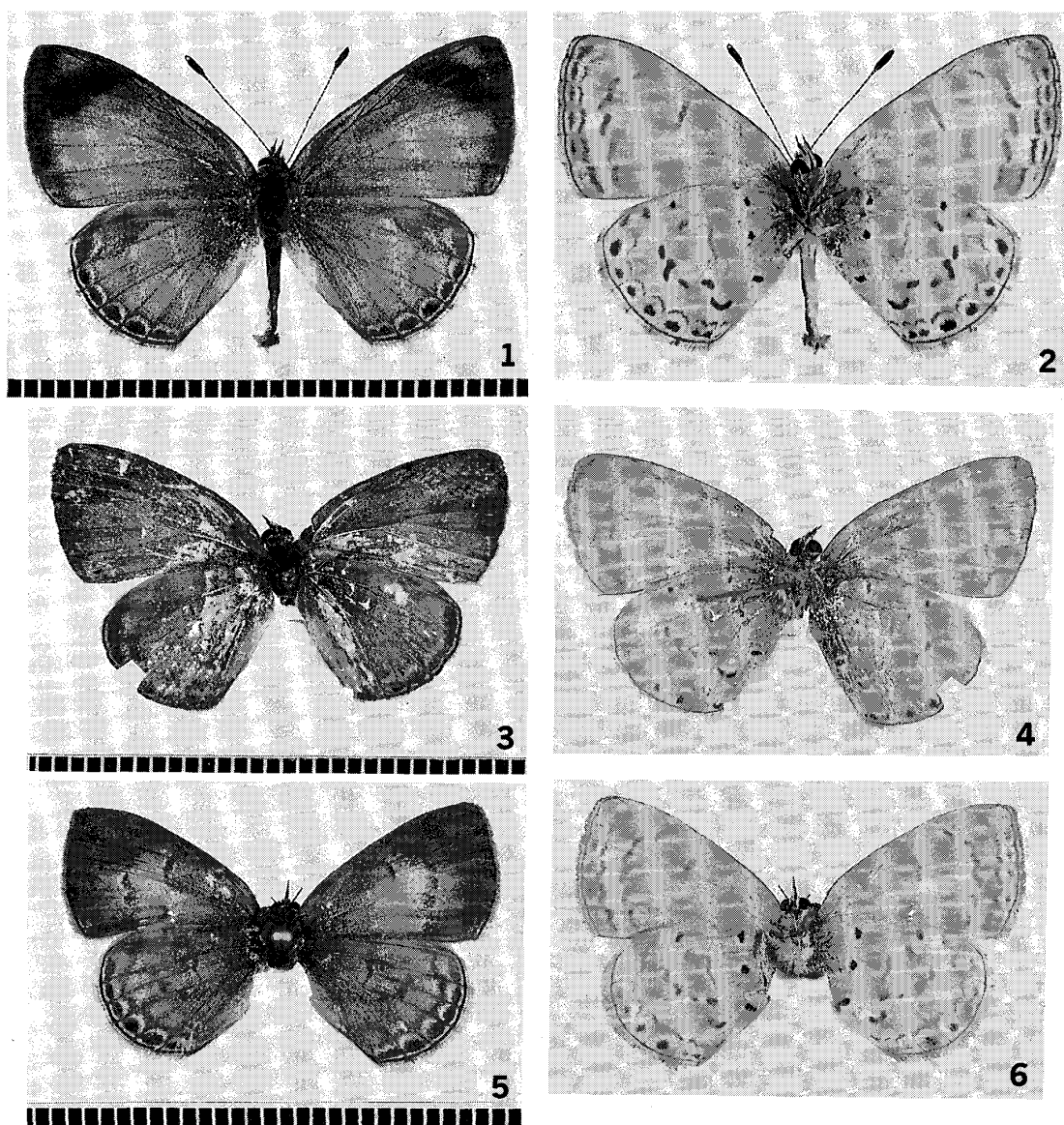
Subgenus *Armentulus* Eliot & Kawazoé, **stat. nov.** Type species : *Cyaniris sheifordii* Nicéville, 1902.

E & K erected *Celarchus* on the basis of a deep inward fold in the vinculum, near the base

of the hump. This unusual feature occurs also in *Sancterila* but was overlooked by Eliot (*pers. comm.*) during the preparation of his manuscript, and these two are considered as the same genus. Additionally, E & K divided *Celarchus* into two subgenera, *Celarchus* and *Armentulus*. Since *Sancterila* and *Celarchus* were presented in the same work by E & K and I can not find any precedence for either of them excepting the priority due to their page order, I choose *Sancterila* as the generic name for them as an act of first reviser. It is therefore necessary to sink *Celarchus* as a synonym of *Sancterila* at the generic level. I propose the division of *Sancterila* in this sense into three subgenera, *Sancterila*, *Celarchus* and *Armentulus* in accordance with E & K's descriptions.

***Sancterila deliciosa deliciosa* (Pagenstecher) (Figs 1, 2)**

*Cupido (Cyaniris) deliciosa* Pagenstecher, 1896 : 50. Holotype male, Sulawesi : Minahassa (SM).



Figs 1-6. *Sancterila* spp. 1, 2. *S. deliciosa deliciosa* (Pagenstecher), ♂. 3, 4. *S. drakei* sp. nov., holotype, ♂. 5, 6. *Ditto*, paratype, ♀. (1, 3, 5. Upperside; 2, 4, 6. Under-side.)

*Cupido deliciosa* Pagenstecher : Pagenstecher, 1897 : 416, pl. 20, fig. 8 male.

*Notarthrinus (Monodontides) deliciosa* (Pagenstecher) : Toxopeus, 1927 : 258.

The holotype remained the only known specimen until a long series was taken by Cassidy in 1985. E & K, p. 76, incorrectly included under this taxon three butterflies taken on Mt Tambusisi, Central Sulawesi in 1980. Unfortunately, the genitalia drawings on pp. 76-77 of E & K were taken from this latter material. Following the rediscovery of the species in North Sulawesi, the holotype was borrowed from Frankfurt and dissected. This showed the branched, spiked valvae shown in E & K, p. 81, fig. 48, as *S. sohmai*.

During Project Wallace *deliciosa* was taken in two locations. One of these was 'Gunung 1440', an anomalously-named hilltop at 1,200 m elevation in the Toraut district of the Dumoga-Bone National Park. The other was the peak of Gunung Muajat, east of Kotamobagu, at 1,780 m. All of the specimens collected were males, which were habitually involved in tailchases around the hilltops involving up to four or five individuals in a stream of blue. The form of the female remains unknown. Forewing length in the males varies from 14-16 mm.

Locations. [Mainland] : N Sulawesi : Dumoga-Bone Nat Pk (1,200 m) (iii), Gn Muajat (1,780 m) (iv). The species is unlikely to be found at elevations below 1,000 m.

***Sancterila deliciosa sohmai* Eliot & Kawazoé, stat. nov.**

*Sancterila sohmai* Eliot & Kawazoé, 1983 : 80. Holotype male, Sulawesi : Toraja (MMNH).

This was described as a good species by E & K, but has proved to be conspecific with *deliciosa* by dissection of the male genitalia. The synonymy is not absolute, however, as the male of *sohmai* has only a slight dusting of black subapical scales on the forewing upperside while *deliciosa* has a broad apical black triangle with superimposed blue scaling. As these taxa are geographically isolated in their respective montane regions, I suspect that intermediates will not be found. Therefore I retain *sohmai* as a valid subspecific name.

Locations. [Mainland] : C Sulawesi : Toraja (Pulu Pulu and Parado) (2,000-2,300 m) (i, vi, vii, x).

***Sancterila drakei* sp. nov. (Figs 3-8)**

*Sancterila deliciosa* Pagenstecher : E & K, 1983 : 76-77, Figs 42, 43, 470. Misidentification.

This new name is given to the two males and single female taken on Mt Tambusisi in 1980 by A. Bedford-Russell. The male is superficially similar to *deliciosa* with which it was associated by E & K. By way of description, I can do no better than to quote E & K and reproduce their genitalia drawings (Figs 7 & 8). This I do with their kind permission. It is evident from the study of this genus in Sulawesi that external characters do not give satisfactory interspecific identification and that genitalic examination is necessary for each new population discovered.

In the males of *drakei*, the forewing border is broader than in *deliciosa*, measuring 1.5 mm at the tornus, the apical violet-blue patch is smaller, and on the hindwing the marginal lunules are conjoined and the submarginal lunules are more strongly developed. The androconia have an average of 14 ridges. In the male genitalia, the valva has a bulbous base with a single long, smooth apical process which is curved through almost 90 degrees.

In the female of *drakei* the basal and discal areas are greyish blue overlaid basally with shining, dark blue scales. The forewing border is inwardly diffuse, measures 2.5 mm at

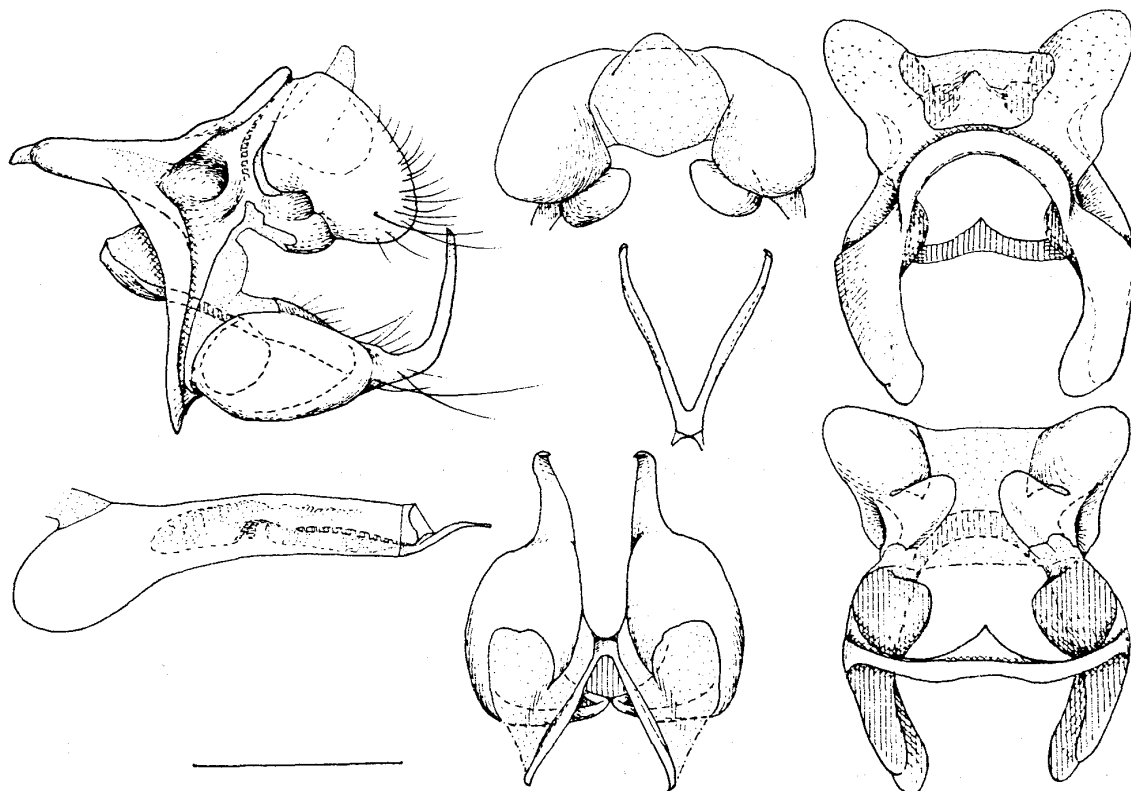


Fig. 7. Male genitalia of *Sancterila drakei* sp. nov. (After Eliot & Kawazoé, 1983)

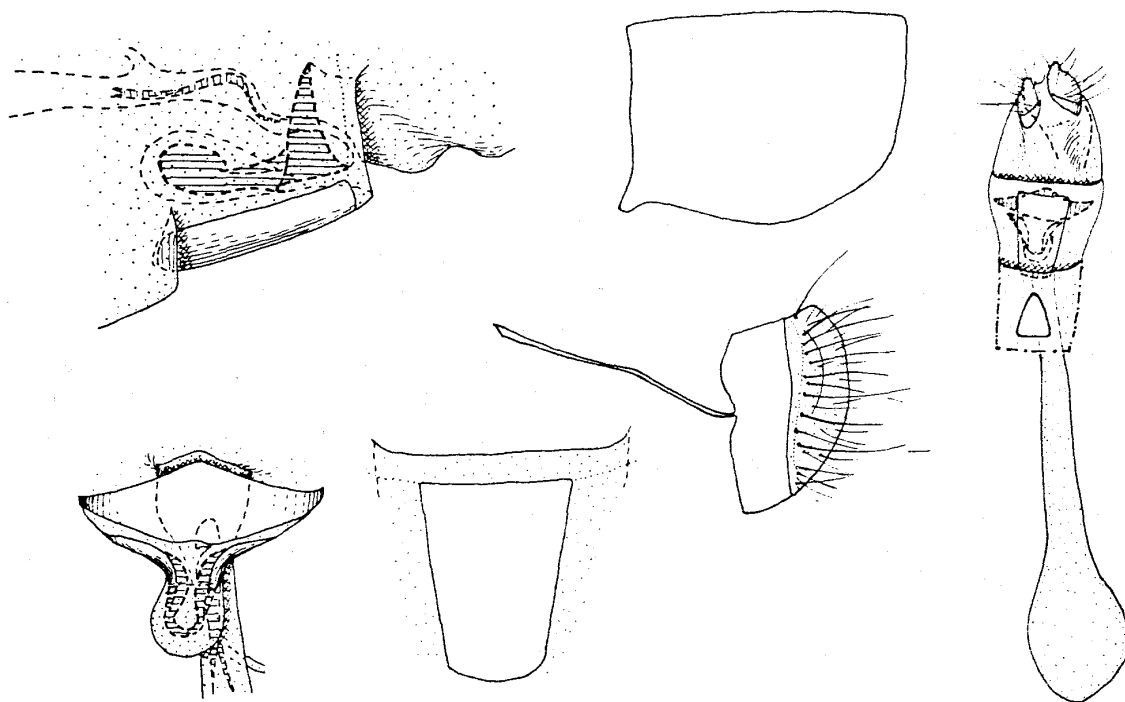


Fig. 8. Female genitalia of *Sancterila drakei* sp. nov. (After Eliot & Kawazoé, 1983)

vein Cu<sub>2</sub> and increases slightly at the dorsum. There are four post-discal blackish spots in spaces 1b to 4, that in space 1b very faint. On the hindwing the marginal spots are contiguous, the submarginal lunules rather diffuse, the costal fuscous area fills spaces 8 and 7 and the basal half of space 6, and there are blackish post-discal spots in spaces 3 to 5. On the underside of both sexes the *Celastrina philippina*-like markings are complete and of moderate intensity.

At the suggestion of the collector, Bedford-Russell, the species is named after the famous English sailor/explorer Sir Francis Drake, to whom was dedicated Operation Drake, the expedition which provided the opportunity for much valuable collecting on Mt Tambusisi.

Type material. Holotype. ♂, East-Central Sulawesi, Mt Tambusisi, 7,500ft, 1. iv. 1980, Operation Drake. (A. Bedford-Russell) (BMNH). Paratypes. 1 ♂, as holotype, in coll. Bedford-Russell. 1 ♀, Mt Tambusisi, 4,000 ft, 5-10. iii. 1980 (A. Bedford-Russell) (BMNH).

### *Sancterila russelli* Eliot & Kawazoé

*Sancterila russelli* Eliot & Kawazoé, 1983: 79, figs 434-437. Holotype male, Sulawesi: East-central (BMNH).

This species is sympatric on Mt Tambusisi with *drakei*. No further information has become available since the original description.

Location. [Mainland]: EC Sulawesi (Mt Tambusisi, 760 m) (iii).

## Genus *Udara* *Toxopeus*

### *Udara dilecta thoria* (Fruhstorfer) (Figs 9-12)

*Cyaniris placida thoria* Fruhstorfer, 1910: 292. Lectotype male, Sulawesi (BMNH).

*Lycaenopsis cardia thoria* (Fruhstorfer): Fruhstorfer, 1917: 16 ('Südcelebes'); 1922: 865, pl. 152f female, 152g male.

*Celastrina (Udara) dilecta thoria* (Fruhstorfer): *Toxopeus*, 1928: 230.

This is a fairly common species on hilltops above 1,000 m. It is easily confused with *U. rona* Grose-Smith but can be distinguished from it by examination of the post-discal marks in spaces 6 and 7 on the underside of the hindwing. In *U. d. thoria* these are of contrasting colours, that in space 7 darker, and usually oblique and well separated. In *U. rona* the spots are both brown, are aligned and close, almost forming a single line. As with the following *Udara* species, females are much harder to find than males unless a regular flight path is discovered, often at a clear, treeless point where the butterflies cross a ridge. Females seem to use these paths, all travelling in the same direction, from about 11.30 am to around 14.30 pm, possibly during dispersal flights.

Locations. [Mainland]: N Sulawesi: Dumoga-Bone Nat Pk (1,200 m) (iii), Gn Muajat (1,100-1,780 m) (ii, iv). C Sulawesi: Pulu-Pulu (i, v). EC Sulawesi: Mt Tambusisi (ii), Lake Matano (iii). S Sulawesi: Bonthain (ii, x).

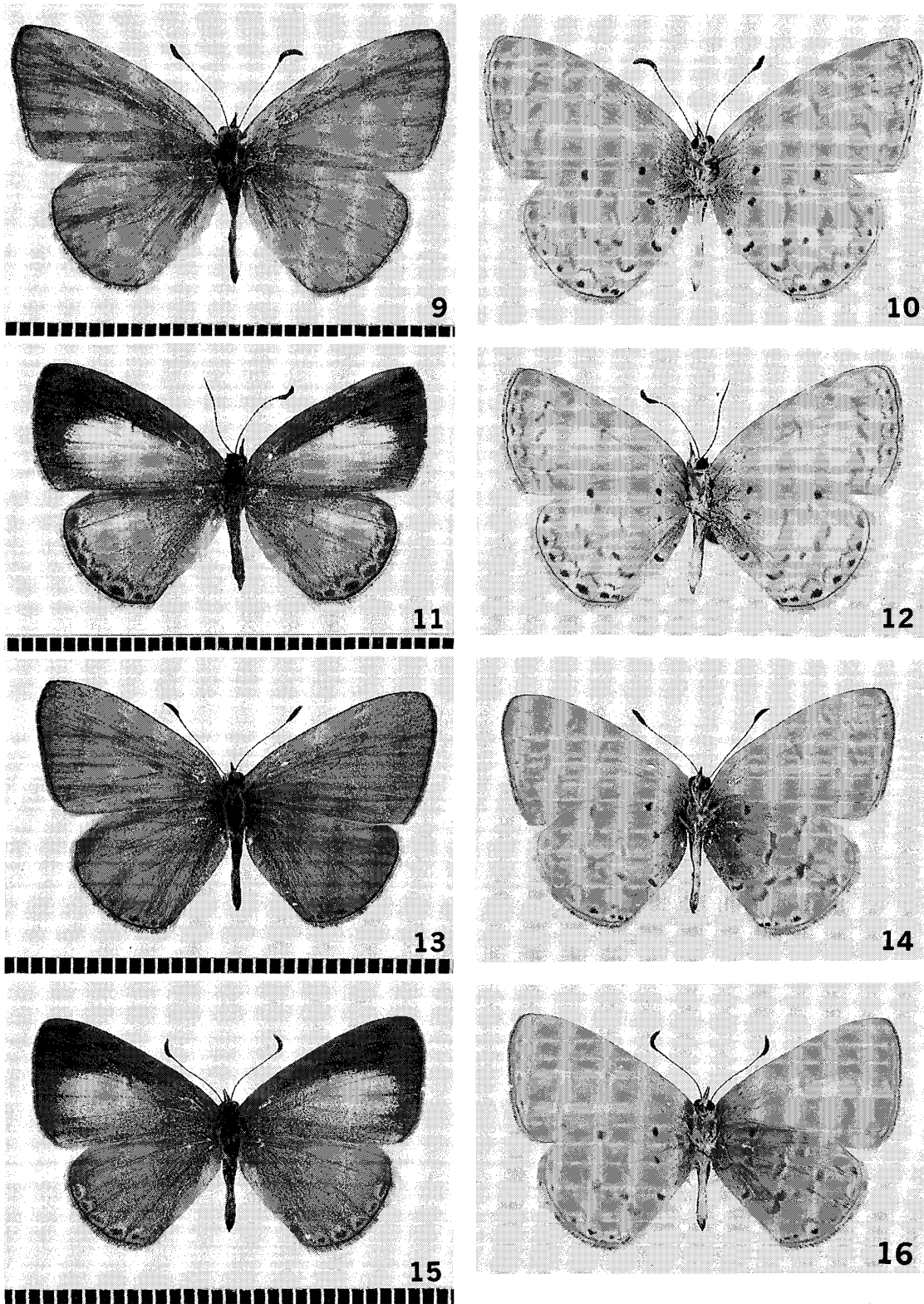
### *Udara rona rona* (Grose-Smith) (Figs 13-16)

*Cyaniris rona* Grose-Smith, 1894: 572. Holotype male, New Guinea: Irian Jaya (BMNH).

*Lycaenopsis rona* (Grose-Smith): Chapman, 1909: 456, fig. 97 male genitalia.

*Udara rona* (Grose-Smith): D'Abrera, 1971: 383.

*Celastrina (Udara) singalensis rona* (Grose-Smith): *Toxopeus*, 1928: 230.



Figs 9-16. *Udara* spp. 9, 10. *U. dilecta thoria* (Fruhstorfer), ♂. 11, 12. *Ditto*, ♀. 13, 14. *U. rona rona* (Grose-Smith), ♂. 15, 16. *Ditto*, ♀. (9, 11, 13, 15. Upperside; 10, 12, 14, 16. Underside).



*Cyaniris beretava* Ribbe, 1899 : 243, pl. 4, fig. 14 male. Holotype male, Bismark Is : New Britain (SMT).  
*Cyaniris biagi* Bethune-Baker, 1908 : 117, pl. 8, fig. 11 male. Holotype male, New Guinea : Papua New Guinea (BMNH).

*Celastrina (Udara) singalensis thorida* Toxopeus, 1928 : 230. Holotype male, Sulawesi (not located).

This species was quite frequently encountered on Gn Muajat in open areas at about 1,500 m, but was not found on the summit at 1,780 m. Nor was it found at a well-collected 1,200 m hilltop in the Toraut area of the Dumoga-Bone National Park. It therefore appears more restricted in vertical distribution than the closely allied *U. d. thoria*.

Locations. [Mainland] : N Sulawesi : Gn Muajat (1,500 m) (iv). C Sulawesi : Pulu-Pulu (ix). EC Sulawesi : Mt Tambusisi (1,200 m) (iii).

***Udara placidula placidula* (H. H. Druce) (Figs 17, 18)**

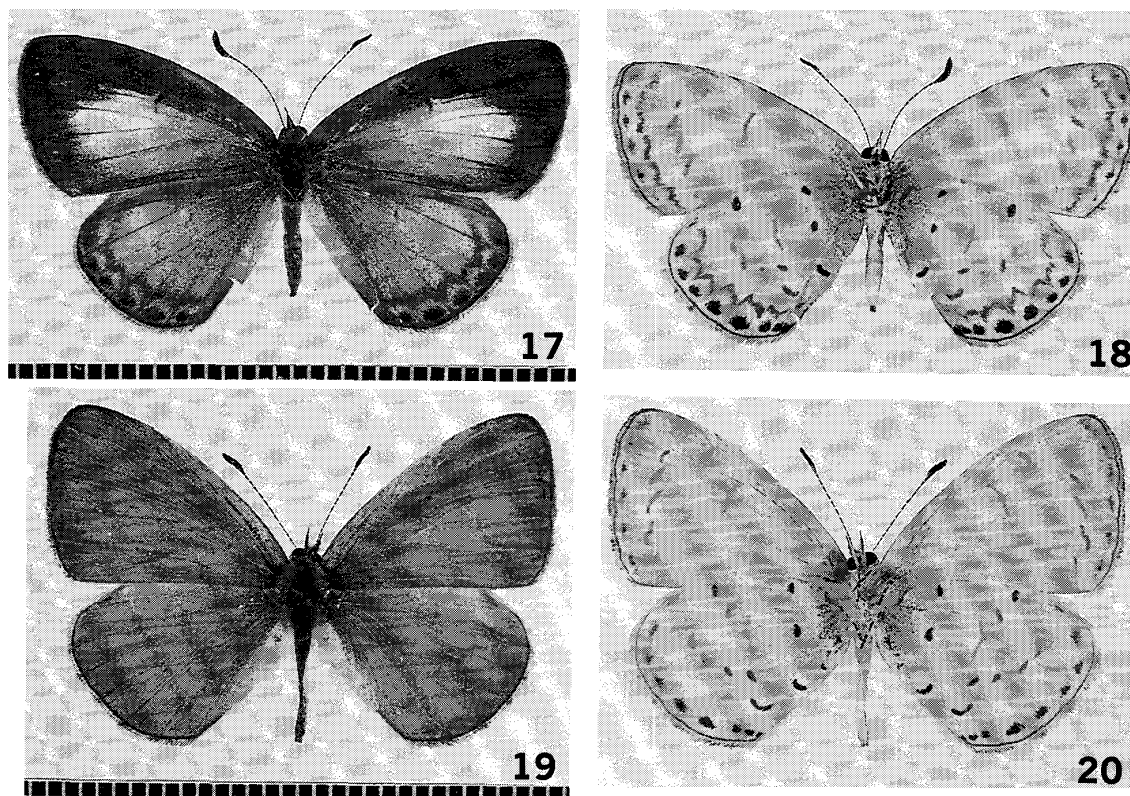
*Cyaniris placidula* H. H. Druce, 1895 : 572, pl. 32, figs 6 male, 7 female. Holotype male, Borneo (MNHU).

*Lycaenopsis tenella placidula* (H. H. Druce) : Chapman, 1909 : 464, fig. 109 male genitalia.

*Udara placidula placidula* (H. H. Druce) : Hayashi, 1976 : 152.

This species can be separated from the two preceding by the great disparity in size between the post-discal spots in spaces 6 and 7 of the underside of the hindwing. Indeed, that in space 6 may be almost obsolete. In the male the forewing upperside border is broader than in the other two species, being almost 1 mm wide. During Project Wallace, *placidula* proved most elusive, only one specimen being obtained. This female was found at the forest edge, beside agricultural land at 1,200 m on the foothills of Gn Muajat.

Locations. [Mainland] : N Sulawesi : Gn Muajat (1,200 m) (iv). C Sulawesi : Pulu-



Figs 17-20. *Udara* spp. 17, 18. *U. placidula placidula* (H. H. Druce), ♀. 19, 20. *U. came-nae euphon* Fruhstorfer, ♂. (17, 19. Upperside ; 18, 20. Underside.)



Pulu (ix, xii), Palopo (iii). EC Sulawesi : Mt Tambusisi (1,200 m) (iii).

***Udara camenae euphon* (Fruhstorfer) (Figs 19, 20)**

*Cyaniris singalensis euphon* Fruhstorfer, 1910 : 291. Lectotype male, Sulawesi (BMNH).

*Lycaenopsis strophis euphon* (Fruhstorfer) : Fruhstorfer, 1917 : 10, pl. 1, fig. 8 male genitalia.

*Cyaniris camenae valeria* Fruhstorfer, 1910 : 296. Lectotype female, Sulawesi (BMNH).

*Lycaenopsis camenae valeria* (Fruhstorfer) : Fruhstorfer, 1917 : 10.

Not previously recorded from the north of Sulawesi, this species was found to be locally quite common on hilltop "1440" (1,200 m), and on the summit on Gn Muajat. In these locations the forewing length varied from 15.0–15.5 mm, much the same as for examples from the Toraja highlands in Central Sulawesi. Specimens from the peak of Bonthain, in the south, average 17 mm.

Locations. [Mainland] : N Sulawesi : Dumoga-Bone Nat Pk (1,200 m) (iii), Gn Muajat (1,780 m) (iv). C Sulawesi : Pulu-Pulu (i, iii), Toraja. S Sulawesi : Bonthain (ii).

***Udara aristius aristius* (Fruhstorfer)**

*Cyaniris ceyx aristius* Fruhstorfer, 1910 : 294. Lectotype male, Sulawesi (BMNH).

*Lycaenopsis aristius aristius* (Fruhstorfer) : Fruhstorfer, 1917 : 12, pl. 2, fig. 14 male genitalia ; Fruhstorfer, 1922 : 864, pl. 152e male and female.

Locations. [Mainland] : Sulawesi : Bonthain (1,000–2,000 m) (ii, x).

***Udara aristius lewari* (Ribbe)**

*Cyaniris lewari* Ribbe, 1926 : 89. Holotype male, Sulawesi (SMT).

This subspecies occurs in the Toraja highlands. The differences between it and *aristius* are well documented in E & K (p. 119).

Locations. [Mainland] : Sulawesi : Toraja highlands, Pulu-Pulu, Mt Osing (2,000 m) (vii).

***Udara etsuzoi* Eliot & Kawazoé**

*Udara etsuzoi* Eliot & Kawazoé, 1983 : 119, figs 438, 439. Holotype male, Sulawesi : Central (NSM).

No further information has come available since the original description.

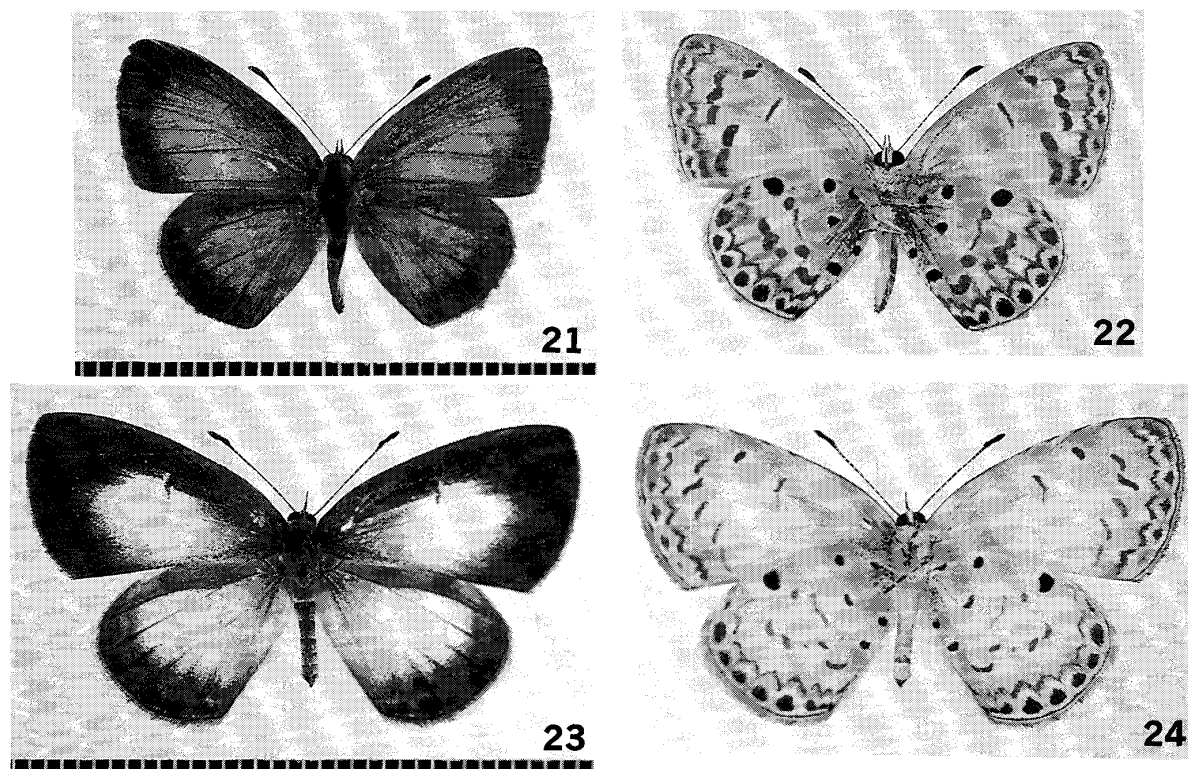
Locations : [Mainland] : C Sulawesi : Toraja, Pulu-Pulu, Mt Osing (2,000 m) (vii, x), Parado (2,000–2,300 m) (v, vi, vii, x).

**Genus *Sidima* Eliot & Kawazoé**

***Sidima sulawesiana* Eliot & Kawazoé**

*Sidima sulawesiana* Eliot & Kawazoé, 1983 : 165, figs 376, 377, 392, 393. Holotype male, Sulawesi : Lake Dano (AME).

This species was described from a pair of butterflies taken in Northern Sulawesi (probably in the Tondano area) in 1940. A single male was taken on the summit of Gn Mogogonipa, 1,000 m, during Project Wallace. Its distribution must be extremely local ; its apparent absence from other hilltops in the vicinity which were extensively collected at the same time cannot be explained.



Figs 21-24. *Acytolepis* spp. 21, 22. *A. puspa kuehni* (Röber), ♂. 23, 24. *A. samanga* (Fruhstorfer), ♀. (21, 23. Upperside; 22, 24. Underside.)

Locations. [Mainland]: N Sulawesi: Tondano (vi, xii), Dumoga-Bone Nat Pk, Gn Mogogonipa (1,000 m) (iv).

### Genus *Acytolepis* Toxopeus

#### *Acytolepis puspa kuehni* (Röber) (Figs 21, 22)

*Plebeius kuehni* Röber, [1886]: 60, pl. 4, fig. 29 (partim). Lectotype male, Sulawesi: East (not located).

*Lycaenopsis puspa kuehni* (Röber): Chapman, 1909: 438.

*Cyaniris puspa kuehni* (Röber): Fruhstorfer, 1910: 287. Sulawesi.

*Acytolepis puspa kuehni* (Röber): Toxopeus, 1928: 231; Eliot & Kawazoé, 1983: 180.

*Lycaenopsis puspa martini* Fruhstorfer, 1922: 870. Lectotype male, Sulawesi (ZSBS).

*Lycaenopsis puspa hyllus* Fruhstorfer, 1922: 870. Lectotype female, Banggai (ZSBS).

*Cyanirus [kuehni] kalawari* Ribbe, 1926: 89. Syntypes, Sulawesi: Kalawara (SMT).

*Cyaniris kuehni bangpaiensis* Ribbe, 1926: 89. Syntypes, Banggai (SMT).

Although *puspa* is a widespread species, and *kuehni* is known from South, East and North Sulawesi, individuals were not common during Project Wallace. It is a lowland forest creature and did not appear to congregate anywhere in significant numbers. A number of males were taken at the bathing place beside the Toraut river at the expedition Base Camp. They appeared to be attracted by human presence although it was not clear whether this was to damp towelling or to the soapy water among the riverside pebbles. No female was discovered by the author during four months in the area.

Locations. [Mainland]: N Sulawesi: Dumoga-Bone Nat Pk (200 m) (ii, iv), Dongala, Palu (ix), Kalawara. E Sulawesi: Tombugu. EC Sulawesi: Lake Matano (iii). S

Sulawesi : Bantimurung (vii, viii, ix), Samanga (xi). [Islands] : Banggai.

***Acytolepis puspa deronda* (Fruhstorfer)**

*Lycaenopsis puspa*, var. : Chapman, 1909 : 438.

*Lycaenopsis puspa deronda* Fruhstorfer, 1922 : 871. Lectotype male, Sula Is (BMNH).

In addition to the type series from the Sula Is, the BMNH has one specimen, *ex* Hewitson collection, from 'Tondano' which is believed to be from the Minahassa peninsula. This location is considered doubtful as all other specimens seen from Minahassa are of ssp. *kuehni*.

Locations. [Mainland] : N Sulawesi : Tondano (?). [Islands] : Sula Besi (x), Sula Mangole (x, xi).

***Acytolepis najara* (Fruhstorfer)**

*Cyaniris najara* Fruhstorfer, 1910 : 287 (partim, male nec 'female'). Holotype male, Sulawesi : Bua-Kraeng 5,000 ft (BMNH).

This species was not confirmed in the north of the island during Project Wallace, but two males were taken by Tennent at Lore-Lindu in August 1985. These vary in forewing length from 12 to 14 mm.

Locations. [Mainland] : N Sulawesi : Tondano. C Sulawesi : Lore-Lindu (600-1,200 m) (viii), Tanah Toraja (viii), Bonthain (1,500 m).

***Acytolepis samanga* (Fruhstorfer) (Figs 23, 24)**

*Cyaniris akasa* (Horsfield) : Pagenstecher, 1897 : 415. Misidentification.

*Cyaniris samanga* Fruhstorfer, 1910 : 286. Lectotype female, Sulawesi (not located).

*Acytolepis puspa samanga* (Fruhstorfer) : Toxopeus, 1928 : 231 (partim, female nec male).

*Celastrina samanga* (Fruhstorfer) : Eliot, 1956 : 35, fig. 2 male genitalia.

*Lycaenopsis puspa kuehni* (Röber), dry season form female *samanga* (Fruhstorfer) : Fruhstorfer, 1922 : 870, pl. 152f female (entitled *lyseas* in error).

*Cyaniris najara* Fruhstorfer, 1910 : 287 (partim, 'female' recte male, nec male).

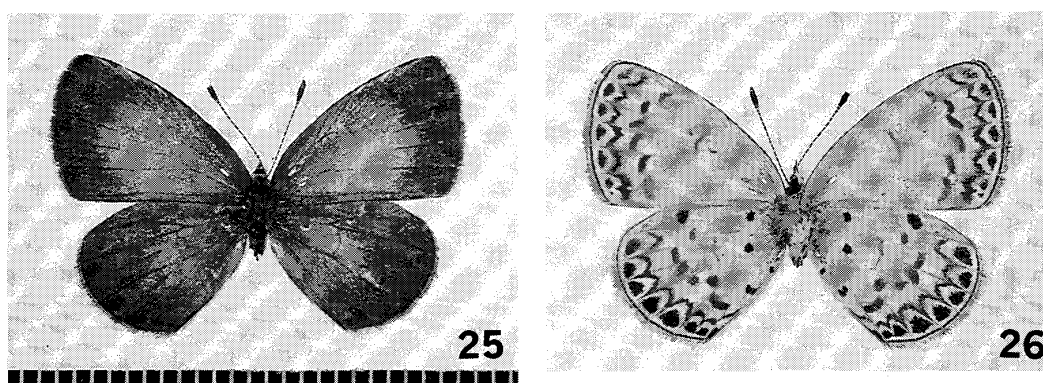
*Lycaenopsis puspa najara* (Fruhstorfer) : Fruhstorfer, 1922 : 870, pl. 152c 'male' recte female (partim).

*Lycaenopsis akasa parakasa* Fruhstorfer, 1922 : 862. Syntypes, Sulawesi : Minahassa (SM).

*Celastrina lavendularis lyce* (Grose-Smith) : Toxopeus, 1928 : 229 (partim, 'female' recte male, nec male). Misidentification.

Four females were taken during Project Wallace, from two locations. All had the upperside hindwing margin much darker than that illustrated in E & K, fig. 267. Eliot (*pers. comm.*) states that some males also show similar characteristics. Certainly a male taken by Tennent in the Dumoga-Bone NP in July has a solid black border 4 mm wide on the hindwing. Also, a male in the collection of Bedford-Russell, taken at Lake Matano in March 1980, has the upperside of the hindwing almost completely dark brown with only traces of blue scaling. It is likely that this represents nothing more significant than local variation, and is not accorded any taxonomic importance.

Locations. [Mainland] : N Sulawesi : Dumoga-Bone Nat Pk (1,200 m) (iii, vii), Danau Mooat (1,100 m) (ii), Tondano. EC Sulawesi : Lake Matano (iii). S Sulawesi : Samanga, Bonthain (iv, x)



Figs 25, 26. *Celastrina philippina gradeniga* (Fruhstorfer), ♂. (25. Upperside; 26. Underside.)

### Genus *Celastrina* Tutt

#### *Celastrina philippina philippina* (Semper)

*Cyaniris philippina* Semper, 1889: 168, pl. 2, figs 16, 18 male, 17 female (partim). Lectotype male, Philippines (SM).

*Cyaniris philippina philippina* Semper (partim): Fruhstorfer, 1910: 300 (Luzon).

*Lycaenopsis cardia philippina* (Semper): Fruhstorfer, 1917: 14.

*Lycaenopsis philippina philippina* (Semper): Toxopeus, 1926: 369.

*Celastrina philippina philippina* (Semper): Hayashi & Iwanaga, 1974: 18, figs 12, 13 male, 1c-5c male genitalia.

Locations. [Islands]: Talaud (ii, iii).

#### *Celastrina philippina gradeniga* (Fruhstorfer) (Figs 25, 26)

*Cynaris gradeniga* Fruhstorfer, 1910: 301. Lectotype male, Sulawesi (BMNH).

*Lycaenopsis nedda gradeniga* (Fruhstorfer): Fruhstorfer, 1917: 35; 1922: 875, pl. 152e male.

*Lycaenopsis philippina gradenigra* [sic] (Fruhstorfer): Toxopeus, 1926: 369.

*Lycaenopsis nedda proba* Fruhstorfer, 1922: 875. Lectotype male, Sulawesi (ZSBS).

A short series of males was taken by Tennent at Palu in August 1985. In all cases the upperside forewing border was 4 mm wide (compared with 2 mm quoted in E & K), whilst the hindwing border varied in width from 4 mm to 6 mm.

Locations. [Mainland]: N Sulawesi: Palu (viii). E Sulawesi: Tombugu. S Sulawesi: Bonthain (viii, ix). [Islands]: Sula Is (x).

#### *Celastrina lavendularis lyce* (Grose-Smith)

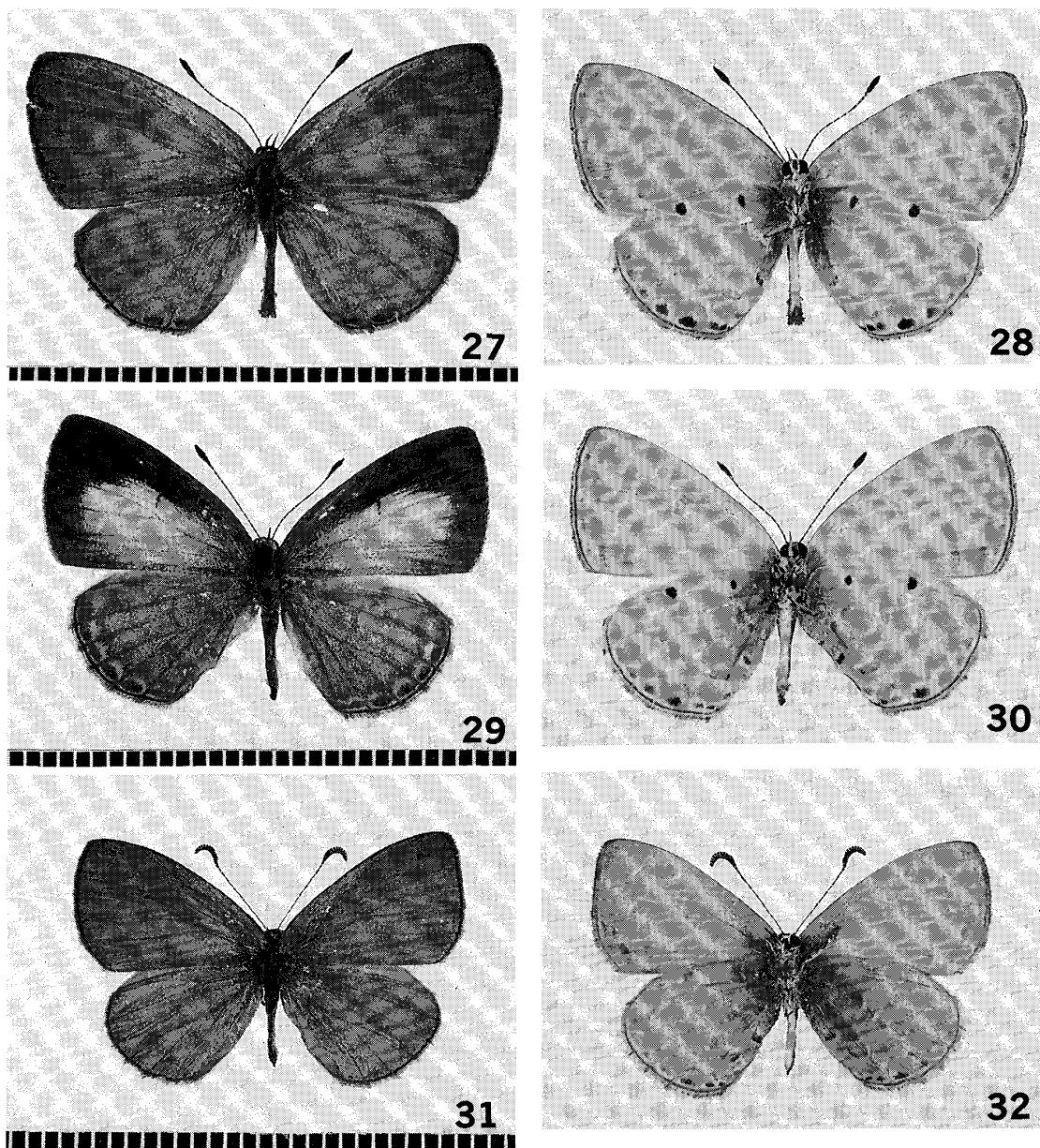
*Cyaniris lyce* Grose-Smith, 1895: 506. Lectotype male, Sulawesi (BMNH).

*Cyaniris pellationia* Fruhstorfer, 1910: 301. Lectotype male, Sulawesi (BMNH).

*Lycaenopsis limbatus lyce*, f. *pellationia* (Fruhstorfer): Fruhstorfer, 1917: 32.

The only specimen taken during Project Wallace was a male from the Toraut river bathing spot in March. It seemed attracted by human activity, as described for *A. p. kuehni*.

Locations. [Mainland]: N Sulawesi: Dumoga-Bone Nat Pk (200 m) (iii). S Sulawesi: Bua-Kraeng (1,500 m) (ii, viii, ix, x).



Figs 27-32. *Monodontides* spp. 27, 28. *M. kolari* (Ribbe), ♂. 29, 30. *Ditto*, ♀. 31, 32. *M. care* (Nicéville), ♂. (27, 29, 31. Upperside; 28, 30, 32. Underside.)

### Genus *Uranobothria* Toxopeus

#### *Uranobothria celebica* (Fruhstorfer)

*Lycaenopsis (Bothrina) celebica* Fruhstorfer, 1917: 40, pl. 1, fig. 12 male genitalia; 1922: 877, pl. 152e male. Holotype male, Sulawesi: Bonthain (ZSBS).

*Uranobothria celebica* (Fruhstorfer): Toxopeus, 1927: 261, text-fig. 10 eye.

No further information has become available since the 1983 revision.

Locations. [Mainland]: S Sulawesi: Peak of Bonthain (2,285 m) (iv).

***Uranobothria tsukadai* Eliot & Kawazoé**

*Uranobothria tsukadai* Eliot & Kawazoé, 1983 : 267, figs 454, 455, 460. Holotype male, Sulawesi : Toraja (NSM).

This species was common on the summit of Gn Muajat (1,780 m), when visited in both March and July. Previously it had been known only from the Toraja district. Both genitalia and androconia of these northern examples agree with the original description of the species, although they exhibit considerable variability in size, with forewing lengths from 14 to 19 mm.

Locations. [Mainland] : N Sulawesi : Gn Muajat (1,780 m) (iii, vii). C Sulawesi : Toraja, Pulu-Pulu & Parado (2,300 m) (v, vi, ix, x).

**Genus *Monodontides* Toxopeus*****Monodontides kolari* (Ribbe) (Figs 27-30)**

*Cyaniris* (? *lugra*) *kolari* Ribbe, 1926 : 88. Holotype male, Sulawesi : Kalawara (SMT).

Both sexes were taken on hilltop "1440", confirming the species presence in the north of the island.

Locations. [Mainland] : N Sulawesi : Dumoga-Bone Nat Pk (1,200 m) (iii), Kalawara. C Sulawesi : Pulu-Pulu (i).

***Monodontides cara* (Nicéville) (Figs 31, 32)**

*Cyaniris cara* Nicéville, 1898 : 143, pl. Z, figs 19, 20. Holotype male, Sulawesi (ZSI).

*Lycaenopsis cara* (Nicéville) : Fruhstorfer, 1917 : 24, pl. 2, fig. 20 ; 1922 : 868, pl. 152g male and female.

A good series of both sexes was obtained from Gn Muajat in March and April 1985, thus extending the known range of the species, which was previously recorded from southern and central areas only. The males of this series show considerable variation in the valvae, as illustrated in Fig. 33, particularly at the apex and in the inner triangular process. However, I attach no taxonomic significance to this variation, and do not

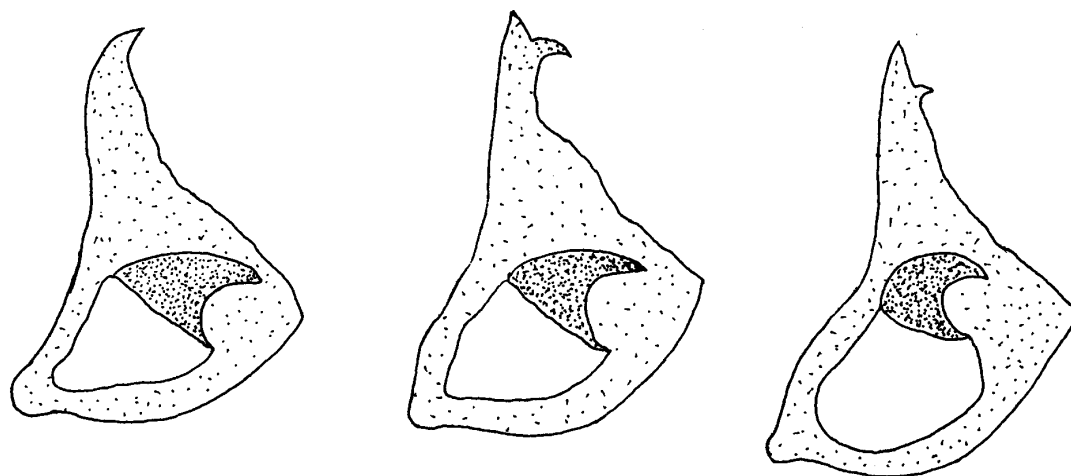


Fig. 33. Left valvae of *Monodontides cara* Nicéville, showing individual variation in specimens from Gunung Muajat, 1,780 m, Kotamobagu, N Sulawesi. All specimens taken on 9. iv. 1985.



consider that these specimens differ sufficiently from typical *cara* to merit subspecific denomination.

Locations. [Mainland] : N Sulawesi : Gn Muajat (1,780 m) (iii, iv). C Sulawesi : Pulu-Pulu (i, x, xi). S Sulawesi : Bonthain (ii, iv).

### Amendments to keys in Eliot & Kawazoé, 1983

Key to genera and subgenera based on male and female genitalia

- 10 Valva without an apical process bearing subsidiary spines ..... *Lestranicus* (p. 72)
- Valva with an apical process bearing subsidiary spines ..... *Lycaenopsis* (p. 36)
- 11 Vinculum deeply hollowed into in-turned, flap-like pouches. Valva with an apical process ..... 12
- Hollow of vinculum shallow, rounded. Valva without an apical process ..... *Plautella* (p. 168)
- 12 Valva with apical process turned inwards towards the centreline of the armature ..... 13
- Valva with apical process directed dorsally or distad. Sometimes also with a subapical or costal process ..... *Sancterila* (*Sancterila*) (p. 74)
- 13 Valva ending in several scimitar-shaped spines. Lateral fenestrula incomplete ..... *Sancterila* (*Armentulus*) (p. 196)
- Valva with apical process not as above. Lateral fenestrula complete ..... *Sancterila* (*Celarchus*) (p. 191)

Key to species of *Sancterila* (*Sancterila*)

- 1 Stet
- Stet
- 2 Valva with a long, forked, spinous costal process emerging just over halfway from base ..... *deliciosa*
- Valva not as above ..... 3
- 3 Valva with a long apical process, bent through nearly 90 degrees .... *drakei* sp. n
- Valva with a short, pointed subapical process ..... *russelli*

Key to subspecies of *Sancterila deliciosa*

- 1 Male upperside with the forewing border expanding to a broad apical area bearing a violet-blue patch. Minahassa ..... *deliciosa deliciosa*
- Male upperside with the forewing border only 1 mm at the apex and with a detached blackish subapical fascia ..... *deliciosa sohmai*

### Acknowledgements

I wish to express thanks to the Staff of the BMNH for encouragement and facilities, to Dr Rienk de Jong of the RNH Leiden, for access to collections and to Mr A. Bedford-Russell, Mr T. W. Harman and Mr W. J. Tennent for making specimens available for examination. An especial debt is owed to Lt. Col. J. N. Eliot (Retd) for valuable comments during the preparation of this paper. Photographs were by the BMNH, and I would particularly like to thank Syntax Wordprocessing, Maidenhead, for production of the manuscript.

## References

- Bethune-Baker, G. T., 1908. Descriptions of new species of butterflies of the division Rhopalocera from Africa and from New Guinea. *Proc. zool. Soc. Lond.* **1908** : 110-126, 2 pls.
- Chapman, T., 1909. A review of the species of the lepidopterous genus *Lycaenopsis* Feld. (*Cyaniris* auct. nec Dalm.) on examination of the male ancillary appendages. *Proc. zool. Soc. Lond.* **1909** : 419-476, 72 figs.
- D'Abbrera, B., 1971. *Butterflies of the Australian Region*, edn 1. 415 pp., Melbourne.
- Druce, H. H., 1895. A monograph of the Bornean Lycaenidae. *Proc. zool. Soc. Lond.* **1895** : 556-627, 4 pls.
- Eliot, J. N., 1956. New and little-known Rhopalocera from the Oriental region. *Bull. Raffles Mus.* **27** : 32-38.
- Eliot, J. N. and A. Kawazoé, 1983. *Blue Butterflies of the Lycaenopsis Group*. 309 pp., 560 figs. London.
- Fruhstorfer, H., 1910. Neue *Cyaniris*-Rassen und Übersicht der bekannten Arten. *Stettin. ent. Ztg* **71** : 282-305.
- Fruhstorfer, H., 1917. Revision der Lycaenidengattung *Lycaenopsis*. *Arch. Naturgesch.* **82** (A) (1) : 1-42, 2 pls.
- Fruhstorfer, H., 1918. Altes und Neues über *Megisba malaya*. *Arch. Naturgesch.* **82** (A) (12) : 4-8.
- Fruhstorfer, H., 1919. Revision der Artengruppe *Pithecopis* und Grund der Morphologie der Klammerorgane. *Arch. Naturgesch.* **83** (A) (1) : 77-84.
- Fruhstorfer, H., 1922. Gattungen *Megisba*, *Lycaenopsis* *Pithecopis*. In Seitz, A., *Die Gross-Schmetterlinge der Erde* **9** : 857-881. Stuttgart.
- Grose-Smith, H., 1894. An account of a collection of diurnal Lepidoptera from New Guinea. Part 3. *Novit. zool.* **1** : 571-583.
- Grose-Smith, H., 1895. Descriptions of new species of butterflies, captured by Mr. Doherty in the islands of the Eastern Archipelago, and now in the Museum of the Hon. Walter Rothschild at Tring. *Novit. zool.* **2** : 505-514.
- Hayashi, H., 1976. New subspecies of *Jamides* and *Udara* from Palawan (Lepidoptera : Lycaenidae). *Tyô Ga* **27** : 151-155.
- Hayashi, H. and S. Iwanaga, 1974. A new species of *Celastrina* (Lepidoptera : Lycaenidae) from Borneo and Luzon. *Kontyû, Tokyo* **42** : 17-23.
- Matsumura, S., 1919. *Thousand Insects of Japan*. Addit. **3** : 475-742, pls 26-53.
- Moore, F., 1884. Descriptions of some new Asiatic diurnal Lepidoptera ; chiefly from specimens contained in the Indian Museum, Calcutta. *J. asiat. Soc. Beng.* **53** : 16-52.
- Nicéville, L. de, 1890. *The Butterflies of India, Burmah and Ceylon* **3**. xi+505 pp., 6 pls. Calcutta.
- Nicéville, L. de, 1898. On new and little-known butterflies from the Indo-Malayan, Austro-Malayan and Australian regions. *J. Bombay nat. Hist. Soc.* **14** : 236-251, 1 pl.
- Pagenstecher, A., 1896. Neue malayische Lepidopteren. *Ent. Nachr. Berl.* **22** : 49-54.
- Pagenstecher, A., 1897. In Kükenthal, W., Ergebnisse einer zoologischen Forschungsreise in den Molukken und in Borneo. Lepidopteren. *Abh. senckenb. naturforsch. Ges.* **23** : 353-467, 3 pls.
- Ribbe, C., 1899. Beiträge zur Lepidopteren-Fauna des Bismarck- und Solomon-Archipels in der Süd-See. *Dt. ent. Z. Iris* **12** : 219-260, 1 pl.
- Ribbe, C., 1926. Neue lycaenenformen hauptsachlich von Celebes. *Ent. Mitt.* **15** : 78-91.
- Röber, J., [1886]. Neue Tagschmetterlinge der indo-australischen Fauna. *CorrespBl. ent. Ver. Iris* **1** : 45-72, pls 2-5.
- Semper, G., 1886-1892. *Die Schmetteling der philippinischen Inseln*. 1. Tagfalter. 380+14 pp., 49+2 pls. Wiesbaden.
- Toxopeus, L. J., 1927. Eine Revision der javanischen, zu *Lycaenopsis* und verwandten Genera gehörigen Arten. *Tijdschr. Ent.* **70** : 232-302, 1 pl.
- Toxopeus, L. J., 1928. Eine Revision der javanischen, zu *Lycaenopsis* und verwandten Genera gehörigen Arten. *Tijdschr. Ent.* **71** : 179-265, 1 pl.

## 摘 要

スラウェシの *Lycaenopsis* 群 (鱗翅目, シジミチョウ科) (Alan C. Cassidy)

ルリシジミ類を含む *Lycaenopsis* 群については, Eliot & Kawazoé (1983) の分類学的再検討があり, この研究は現在でも重要な参照体系となっている. 筆者は, 1985 年イギリス王立昆虫学会によって主催された昆虫相調査 'Project Wallace' に参加し, 多くの材料を得ることができた. 本論文では, これらの標本にもとづいてスラウェシならびにその周辺域における *Lycaenopsis* 群の再検討を行い, 新種 *Sancterila drakei* を記載するとともに, いくつかの分類学的変更を行った. 以下にその概要を示す.

*Neopithecops umbretta dorothea* Eliot & Kawazoé

スラ諸島に分布するが, 近縁の *N. zalmora* と同様にスラウェシ本島では知られていないようである. 本属がマラヤ, ボルネオ, フィリピン, 北モルッカに広く分布するにもかかわらずスラウェシに分布しないのは興味深い.

*Sancterila* Eliot & Kawazoé (= *Celarchus* Eliot & Kawazoé)

Eliot & Kawazoé (1983) は, vinculum が背方で内側に深く窪むことから *Celarchus* 属を創設したが, この特徴は彼らが同時に創設した *Sancterila* 属にも認められることが分かった. Eliot らはこれを見落としており (Eliot 私信), 前者を後者のシノニムとした.

*S. deliciosa deliciosa* (Pagenstecher)

本種は, 著者が 1985 年に多くの個体を採集するまで, holotype 1 個体のみが知られていた. スラウェシ北部に分布.

*S. deliciosa sohmai* Eliot & Kawazoé, stat. nov.

*S. deliciosa* の holotype を解剖した結果, 交尾器の valva の中央背面に刺状突起があり, Eliot らが *sohmai* として記載した種は *deliciosa* と同一種であることがわかった. ここでは *deliciosa* の亜種とした. スラウェシ中部に分布.

*S. drakei* sp. nov.

Eliot らが *deliciosa* としたもの (誤同定) を新種として記載した. 本種は *deliciosa* に似るが, Eliot らが示したように♂の交尾器, 特に valva の形状は顕著に異なっている. 外見上は *drakei* の♂の前翅外縁黒帯は幅がより広く, 翅頂部の紫青色の斑紋はより小さいことなどで区別できる.

*Udara dilecta thoria* (Fruhstorfer)

標高 1,000 m を越える山頂部などで普通にみられる. 次種 *rona* と混同されるが, 後翅裏面第 6, 7 室の中室外斑で区別できる. すなわち, 本種では第 7 室の斑紋は 6 室のものより濃く鮮明で両者が分離するが, 次種では両者が帯状となり連続的に並ぶ.

*U. rona rona* (Grose-Smith)

Muajat 山の標高 1,500 m 付近で多く見られたが, 1,780 m の山頂では見られず, 前種とは垂直分布が異なるようである.

*U. placidula placudula* (H. H. Druce)

上記 2 種に似るが, 後翅裏面第 6 室の中室外斑がほぼ消失すること, ♂の前翅表面外縁黒帯が広い

(約 1 mm) ことなどで区別できる。

*Acytolepis puspa kuehni* (Röber)

本種は広域分布種で、亜種 *kuehni* もスラウエシに広く分布する。しかし、1985 年の調査ではあまり多くなく、低地の川辺、特に Toraut 川キャンプ地の入浴地点周辺で何らかの人工物に誘引されたと思われる多くの♂が見られた。

*U. tsukadai* Eliot & Kawazoé

これまでトラジャ地方でしか知られていなかったが、1985 年の調査では北スラウエシの Muajat 山 (1,780 m) の頂上で 3 月、7 月ともに普通であった。今回得られた個体の交尾器・発香鱗の形状は原記載ものと一致したが、個体の大きさに顕著な変異があった (前翅長 14-19 mm)。

*Monodontides cara* (Nicéville)

スラウエシの中-南部から知られていたが、北スラウエシの Muajat 山で 3 月、4 月に採集された。Fig. 33 に示したように、valva の先端と内方の突起の形状に個体変異が認められた。

[文責：広渡俊哉]

(Accepted November 14, 1994)